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1 [Recovery in the Calypso file system](#)



[Murthy Devarakonda](#), [Bill Kish](#), [Ajay Mohindra](#)

August 1996

Transactions on Computer Systems (TOCS) , Volume 14 Issue 3

Publisher: ACM

Full text available: Pdf (318.88 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#), [review](#)

Bibliometrics: Downloads (6 Weeks): 10, Downloads (12 Months): 71, Citation Count: 5

This article presents the design and implementation of the recovery scheme in Calypso. Calypso is a cluster-optimized, distributed file system for UNIX clusters. As in Sprite and AFS, Calypso servers are stateful and scale well to a large number of clients. ...

Keywords: Calypso, cluster systems, distributed state, state reconstruction

2 [A stateless approach to connection-oriented protocols](#)



[Alan Shieh](#), [Andrew C. Myers](#), [Emin Gün Sirer](#)

September 2008

Transactions on Computer Systems (TOCS) , Volume 26 Issue 3

Publisher: ACM

Full text available: Pdf (1.25 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 106, Downloads (12 Months): 295, Citation Count: 0

Traditional operating system interfaces and network protocol implementations force some system state to be kept on both sides of a connection. This state ties the connection to its endpoints, impedes transparent failover, permits denial-of-service attacks, ...

Keywords: Stateless interfaces, stateless protocols

3 Scalable and fault-tolerant support for variable bit-rate data in the exedra streaming server



Stergios V. Anastasiadis, Kenneth C. Sevoik, Michael Stumm

November 2005 Transactions on Storage (TOS) , Volume 1 Issue 4

Publisher: ACM

Full text available: Pdf (1.01 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 14, Downloads (12 Months): 68, Citation Count: 0

We describe the design and implementation of the Exedra continuous media server, and experimentally evaluate alternative resource management policies using a prototype system that we built. Exedra has been designed to provide scalable and efficient support ...

Keywords: Content distribution, multimedia compression

4 Write off-loading: Practical power management for enterprise storage



November 2008 Transactions on Storage (TOS) , Volume 4 Issue 3

Publisher: ACM

Full text available: Pdf (788.45 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 2, Downloads (12 Months): 2, Citation Count: 0

In enterprise data centers power usage is a problem impacting server density and the total cost of ownership. Storage uses a significant fraction of the power budget and there are no widely deployed power-saving solutions for enterprise storage systems. ...

Keywords: DiskEnergy, disk spin-down, energy, enterprise storage, power, write off-loading

5 DISP: Practical, efficient, secure and fault-tolerant distributed data storage



Daniel Ellard, James Megquier

February 2005 Transactions on Storage (TOS) , Volume 1 Issue 1

Publisher: ACM

Full text available: Pdf (148.11 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 21, Downloads (12 Months): 101, Citation Count: 2

DISP is a practical client-server protocol for the distributed storage of immutable data objects. Unlike most other contemporary protocols, DISP permits applications to make explicit tradeoffs between total storage space, computational overhead, and ...

Keywords: Distributed data storage

6 [OceanStore: an architecture for global-scale persistent storage](#)



[John Kubiatowicz](#), [David Bindel](#), [Yan Chen](#), [Steven Czerwinski](#), [Patrick Eaton](#), [Dennis Geels](#), [Ramakrishna Gummadi](#), [Sean Rhea](#), [Hakim Weatherspoon](#), [Chris Wells](#), [Ben Zhao](#)

December 2000 ASPLOS-IX: Proceedings of the ninth international conference on Architectural support for programming languages and operating systems

Publisher: ACM

Full text available: [Pdf](#) (166.53 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 42, Downloads (12 Months): 230, Citation Count: 212

OceanStore is a utility infrastructure designed to span the globe and provide continuous access to persistent information. Since this infrastructure is comprised of untrusted servers, data is protected through redundancy and cryptographic techniques. ...

Also published in:

December 2000 **SIGARCH Computer Architecture News** Volume 28 Issue 5

December 2000 **SIGOPS Operating Systems Review** Volume 34 Issue 5

7 [Low-overhead byzantine fault-tolerant storage](#)



[James Hendricks](#), [Gregory R. Ganger](#), [Michael K. Reiter](#)

October 2007 SOSP '07: Proceedings of twenty-first ACM SIGOPS symposium on Operating systems principles

Publisher: ACM

Full text available: [Pdf](#) (1.01 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 19, Downloads (12 Months): 163, Citation Count: 1

This paper presents an erasure-coded Byzantine fault-tolerant block storage protocol that is nearly as efficient as protocols that tolerate only crashes. Previous Byzantine fault-tolerant block storage protocols have either relied upon replication, which ...

Keywords: byzantine fault-tolerant storage

Also published in:

October 2007 **SIGOPS Operating Systems Review** Volume 41 Issue 6

8 [OceanStore: an architecture for global-scale persistent storage](#)



[John Kubiatawicz](#), [David Bindel](#), [Yan Chen](#), [Steven Czerwinski](#), [Patrick Eaton](#), [Dennis Geels](#), [Ramakrishan Gummadi](#), [Sean Rhea](#), [Hakim Weatherspoon](#), [Westley Weimer](#), [Chris Wells](#), [Ben Zhao](#)

November 2000 SIGPLAN Notices , Volume 35 Issue 11

Publisher: ACM

Full text available: Pdf (1.47 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 15, Downloads (12 Months): 118, Citation Count: 3

OceanStore is a utility infrastructure designed to span the globe and provide continuous access to persistent information. Since this infrastructure is comprised of untrusted servers, data is protected through redundancy and cryptographic techniques. ...

9 [Building reliable mobile-aware applications using the Rover toolkit](#)

[Anthony D. Joseph](#), [M. Frans Kaashoek](#)

October 1997 Wireless Networks , Volume 3 Issue 5

Publisher: Kluwer Academic Publishers

Full text available: Pdf (371.04 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 7, Downloads (12 Months): 36, Citation Count: 1

This paper discusses extensions to the Rover toolkit for constructing reliable mobile-aware applications. The extensions improve upon the existing failure model, which addresses client or communication failures and guarantees reliable message delivery ...

10 [BASE: Using abstraction to improve fault tolerance](#)



[Miguel Castro](#), [Rodrigo Rodrigues](#), [Barbara Liskov](#)

August 2003 Transactions on Computer Systems (TOCS) , Volume 21 Issue 3


Publisher: ACM

Full text available: Pdf (438.18 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 29, Downloads (12 Months): 136, Citation Count: 7


Software errors are a major cause of outages and they are increasingly exploited in malicious attacks. Byzantine fault tolerance allows replicated systems to mask some software errors but it is expensive to deploy. This paper describes a replication ...

Keywords: Byzantine fault tolerance, N-version programming, asynchronous systems, proactive recovery, state machine replication

- 11 [Design and Implementation of Multiple Fault-Tolerant MPI over Myrinet \(M³\)](#)
[Hyungsoo Jung, Dongin Shin, Hyuck Han, Jai W. Kim, Heon Y. Yeom, Jongsuk Lee](#)
November SC '05: Proceedings of the 2005 ACM/IEEE conference on
2005 Supercomputing
Publisher: IEEE Computer Society
Full text available:  Pdf (485.87 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)



Bibliometrics: Downloads (6 Weeks): 7, Downloads (12 Months): 63, Citation Count: 0

Advances in network technology and computing power have inspired the emergence of high-performance cluster computing systems. While cluster management and hardware highavailability tools are readily available, practical and easily deployable fault-tolerant ...

- 12 [RINSE: The Real-Time Immersive Network Simulation Environment for Network Security Exercises](#)
[Michael Lilienstam, Jason Liu, David Nicol, Yougu Yuan, Guanhua Yan, Chris Grier](#)
June PADS '05: Proceedings of the 19th Workshop on Principles of Advanced
2005 and Distributed Simulation
Publisher: IEEE Computer Society
Full text available:  Pdf (403.39 KB) Additional Information: [full citation](#), [abstract](#), [cited by](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 6, Downloads (12 Months): 51, Citation Count: 6

The RINSE simulator is being developed to support large-scale network security preparedness and training exercises, involving hundreds of players and a modeled network composed of hundreds of LANs. The simulator must be able to present a realistic rendering ...

- 13  [Approaches to fault-tolerant and transactional mobile agent execution---an algorithmic view](#)
[Stefan Pleisch, André Schiper](#)
September Computing Surveys (CSUR) , Volume 36 Issue 3
2004
Publisher: ACM
Full text available:  Pdf (946.94 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 41, Downloads (12 Months): 360, Citation Count: 0

Over the past years, mobile agent technology has attracted considerable attention, and a significant body of literature has been published. To further develop mobile agent technology, reliability mechanisms such as fault tolerance and transaction support ...

Keywords: ACID, Byzantine failures, agreement problem, asynchronous system, commit, crash failures, fault tolerance, malicious places, mobile agents, replication, security, transaction

14 [Audit and backup procedures for hardware security modules](#)



[Túlio Cicero Salvaro de Souza](#), [Jean Everson Martina](#), [Ricardo Felipe Custódio](#)

March 2008 I Dtrust '08: Proceedings of the 7th symposium on Identity and trust on the Internet

Publisher: ACM

Full text available: Pdf (506.78 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 16, Downloads (12 Months): 71, Citation Count: 0

Hardware Security Modules (HSMs) are an useful tool to deploy public key infrastructure (PKI) and its applications. This paper presents necessary procedures and protocols to perform backup and audit in such devices when deployed in PKIs. These protocols ...

Keywords: PKI ceremony, embedded cryptographic hardware, hardware security module, key life-cycle, key management, public key infrastructure

15 [How DRM-based content delivery systems disrupt expectations of "personal use"](#)



[Deirdre K. Mulligan](#), [John Han](#), [Aaron J. Burstein](#)

October 2003 DRM '03: Proceedings of the 3rd ACM workshop on Digital rights management

Publisher: ACM

Full text available: Pdf (416.68 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#), [review](#)

Bibliometrics: Downloads (6 Weeks): 57, Downloads (12 Months): 345, Citation Count: 5

We set out to examine whether current, DRM-based online offerings of music and movies accord with consumers' current expectations regarding the personal use of copyrighted works by studying the behavior of six music, and two film online distribution ...

Keywords: access control, content distribution, copyright, digital rights management, fair use, personal use, privacy

16 [Extending DBMSs with satellite databases](#)

[Christian Plattner](#), [Gustavo Alonso](#), [M. Tamer Özsu](#)

July 2008 The VLDB Journal — The International Journal on Very Large Data Bases , Volume 17 Issue 4

Publisher: Springer-Verlag New York, Inc.

Full text available: Pdf (681.33 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 20, Downloads (12 Months): 29, Citation Count: 0

In this paper, we propose an extensible architecture for database engines where satellite databases are used to scale out and implement additional functionality for a centralized database engine. The architecture uses a middleware layer that offers consistent ...

Keywords: Dynamic satellite creation, Extending database functionality, Satellite databases, Snapshot isolation

17 [Execution replay of multiprocessor virtual machines](#)



[George W. Dunlap](#), [Dominic G. Lucchetti](#), [Michael A. Fetterman](#), [Peter M. Chen](#)

March VEE '08: Proceedings of the fourth ACM SIGPLAN/SIGOPS international
2008 conference on Virtual execution environments

Publisher: ACM

Full text available: Pdf (951.09 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 41, Downloads (12 Months): 305, Citation Count: 1

Execution replay of virtual machines is a technique which has many important applications, including debugging, fault-tolerance, and security. Execution replay for single processor virtual machines is well-understood, and available commercially. With ...

Keywords: ReVirt, Xen, determinism, direct memory access, execution replay, hardware page protections, multiprocessors, multithreading, virtual machines

18 [A survey on peer-to-peer key management for mobile ad hoc networks](#)



[Johann Van Der Merwe](#), [Dawoud Dawoud](#), [Stephen McDonald](#)

April Computing Surveys (CSUR) , Volume 39 Issue 1
2007

Publisher: ACM

Full text available: Pdf (872.71 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 180, Downloads (12 Months): 1441, Citation Count: 1

The article reviews the most popular peer-to-peer key management protocols for mobile ad hoc networks (MANETs). The protocols are subdivided into groups based on their design strategy or main characteristic. The article discusses and provides comments ...

Keywords: Mobile ad hoc networks, pairwise key management, peer-to-peer key management, security

19 [Recovering device drivers](#)



[Michael M. Swift](#), [Muthukaruppan Annamalai](#), [Brian N. Bershad](#), [Henry M. Levy](#)

November Transactions on Computer Systems (TOCS) , Volume 24 Issue 4
2006

Publisher: ACM

Full text available: Pdf (365.93 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 20, Downloads (12 Months): 156, Citation Count: 1

This article presents a new mechanism that enables applications to run correctly when device drivers fail. Because device drivers are the principal failing component in most systems, reducing driver-induced failures greatly improves overall reliability. ...

Keywords: I/O, Recovery, device drivers

20 [Simulating the establishment of trust infrastructures in multi-agent systems](#)



Wiebe K. Wiechers, Semir Daskapan, Willem G. Vree

March 2004 I CEC '04: Proceedings of the 6th international conference on Electronic commerce

Publisher: ACM

Full text available: Pdf (311.16 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 6, Downloads (12 Months): 39, Citation Count: 0

In this paper we present and simulate a new approach for creating trusted infrastructures within multi agent systems. This bootstrapping protocol initializes a disordered space by turning it into an organized, redundant hierarchical structure, headed ...

Keywords: secure autonomous voting, security, self-organization, trust management

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